DOCUMENT RESUME

ED 442 267 EF 005 758

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| AUTHOR | Brenner, William A. |
| TITLE | A Principal's Guide to On-Site School Construction. |
| INSTITUTION | National Clearinghouse for Educational Facilities, Washington, DC. |
| PUB DATE | 2000-06-00 |
| NOTE | 6p.; Published in part on an unpublished manuscript written for the National Clearinghouse for Educational Facilities by Glen Earthman and Brad Drager. |
| AVAILABLE FROM | For full text: http:///www.edfacilities.org/ir/irpubs.html. |
| PUB TYPE | Guides - Non-Classroom (055) |
| EDRS PRICE | MF01/PC01 Plus Postage. |
| DESCRIPTORS | *Cooperative Planning; Elementary Secondary Education; Guidelines; *Planning; Principals; *School Construction |

ABSTRACT

This publication explores the things school principals should know when construction takes place in or near the school building while school is in session. It covers pre-construction preparation, including how to work with architects/engineers and other school staff, and actions to take during construction, including proper information dissemination and safe guarding students and property. Finally explored are after construction actions, including custodial/maintenance staff training, and post-occupancy evaluations. (Contains 10 references.) (GR)

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ED 442 267

# A Principal's Guide to On-Site School Construction

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June 2000

School construction is booming, with schools being repaired, renovated, modernized, and enlarged at a rate not witnessed since the 1950s and 1960s. This publication addresses construction that takes place in or near the school building while school is in session—the most difficult kind of construction to manage. Success largely depends upon the preparation, competence, and goodwill of the school district's facility staff, the project architect/engineer, the contractor, and local school officials—and the way they work together.

In most districts, school principals play a key role in the construction process. Where this is the case, here are the things principals should know and do.

## *Prior to Construction*

**Be a part of the process**. You probably are stretched too thin and don't need extra duties. Yet, because your leadership and personal involvement are crucial to a successful construction project, you must insist on being kept "in the loop" from the early planning stages of the project to the day the contractor leaves the site.

**Get help**. There will be a lot to understand and do. Form a small committee of interested teachers, administrators, and facility staff to assist you. Include these folks in all major decisions and delegate what duties you can.

**Plan in advance**. Russ Firlik, an elementary school principal in Connecticut, based preparations for the renovation and expansion of his school on five questions (Firlik 1997):

- Who needs to know about the project and what do they need to know?
- What will happen to the learning environment during construction?
- How can the learning environment be enhanced as a result of the construction?
- How will students and parents be engaged in the process?
- What are our safety concerns?

Firlik had nine months prior to the start of construction to answer these questions. You may not have that much time, but plan as far in advance as possible. Don't wait until the last minute.

**Ask for advice**. Talk to the principals and staff of other schools who have completed construction projects similar to the one being planned for your school. Ask what they've learned, what they would do again, what they would avoid. The National Clearinghouse for Educational Facilities has excellent information about a wide range of school facilities issues.

**Work with the architect/engineer and school district facilities staff from the start**. If an educational specification was required for the construction project, you and your staff probably helped put it together. Now you must work closely with the project architect/engineer and the school district's facilities staff as the educational specification is translated into design drawings. Participate in all design reviews and make sure your school's needs are being accommodated. Research has shown that even those who are involved in the design process are often surprised when they see the actual building or space. Most often, they comment that it appears smaller than they thought, so if you have trouble reading drawings and visualizing spaces, ask for help.

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As the design drawings progress, thoroughly review with the project architect/engineer and the district facilities staff where demolition work will occur, which educational spaces will be affected, and which outdoor areas will be set aside for the contractor during construction. If you don't like something you see, work hard to change it before the design is finalized; after that, it will be too late.

**Nail down important construction issues**. Before the construction contract goes out for bid, ask the project architect/engineer or the district's facilities staff to brief you on the construction contract's provisions regarding site security, storage, staging, fencing, safety, lighting, construction work hours, dust and noise requirements, worker identification, traffic patterns, truck deliveries, bus routines, and similar matters that can have a profound impact on school operations. What kinds of barriers will be in place to bar the students from the construction area? Will workers roam the halls during school hours? Will they wear badges? Will power or water be turned off at times? Is there a prohibition against worker-initiated contact with students?

School districts experienced in construction matters probably will have these matters covered, but it's always good to ask. Again, if you feel something important has been omitted or is incorrect, address the problem before the project goes out for bid (Earthman 1998).

**Ask about the final contract**. Items often are deleted from the construction contract to reduce costs. After the contract is signed, determine if this is the case for your project and, if so, identify exactly what has been deleted. Was it an amenity you had promised faculty or parents? Even if nothing can be done, you will be able to explain the situation. If you need clarification on something, talk to the school district's facilities staff.

## *During Construction*

**Inform yourself and others about ongoing work**. Once construction begins, you must communicate continually with the school district's construction staff, the contractor, parents, school staff, and students. You can do so via newsletters to parents, weekly updates for staff, school assemblies, and reports at PTA meetings. Here are some suggestions based on Russ Firlik's experience (Firlick 1997):

- *Daily site meeting*. During the renovation and expansion of his school, Firlik met with the contractor's site superintendent every morning before school began to discuss what would be happening in and around the building that day. This helped alert him to potential problems ahead of time.

- *Weekly construction team meet-ing*. Once a week, Firlik met with the district facilities director, the architect, and the construction supervisor to discuss immediate concerns and obtain the construction schedule for the next two weeks.

- *Parent involvement*. Firlik select-ed three involved, responsible parents and kept them informed about construction progress. They, in turn, passed along this information the school's parent/teacher council.

- *Periodic school assemblies*. Firlik held monthly assemblies to update students on the progress of the work, remind them of safety rules, and answer questions from Q&A cards students had filled out and placed in boxes around the school. This process had the added advantage of becoming a learning experience in its own right.

Although you must stay on top of daily construction work, "work with the construction team, not around it." You cannot and should not try to manage the actual construction process. And be sure that no unauthorized staff communicate directly with construction workers.

**Work closely with custodial staff**. Your school's custodians probably will be in daily contact with the contractor, providing workmen access to certain areas of the building and grounds, designating temporary storage areas, barricading construction activities, taking extra safety and security precautions, and the like. They probably will be burdened with extra cleaning duties, too, which may require extra time and extra pay. Budget for this. If the building is being enlarged, budget for a larger custodial staff and more cleaning supplies next year. The custodial staff has an important role in the construction process; work closely with them.

**See and be seen**. Maintain a conspicuous presence during the construction period, manage by walking around, stroll the halls, walk the site. Let students, staff, and construction workers know you are on the

job and in control. The principal's presence sends a strong message about concern for safety and order (Futral 1993).

**Safeguard students**. Protect students from the construction process and from themselves. Instruct them not to initiate conversations with construction workers or to venture beyond construction barriers. As onlookers at any construction site can attest, construction can be fascinating, with big machines and lots of people and equipment. Truck traffic may be heavy, rooms that are normally locked may be unlocked. These can be attractive hazards that are difficult for children to resist; plan and act accordingly.

**Protect personal property and equipment**. During the construction process, construction workers probably will have access to areas that contain personal property or valuable equipment. Building keys may proliferate. Determine which rooms are vulnerable and remove or protect any valuables from theft or damage. Experienced tradesmen are accustomed to having access to otherwise secure areas and almost always can be trusted; there are, however, many others who may be on the site temporarily and have little accountability, so keep things as secure and well protected as possible.

**Beware of fire**. A school can be especially vulnerable to fire during the construction process. Fire walls and doors may be opened, flammable materials may be improperly stored, a welding spark or a plumbing torch may ignite something, fire alarms and sprinkler systems may be temporarily disconnected, stairwells and corridors may be partially blocked, fire truck access to the building may be compromised, fire hydrants may be hidden by materials or equipment. Electrical fires are not uncommon.

All this calls for a heightened awareness of fire safety. Make sure all egress features—exit stairs, corridors, and doors—stay unblocked and that nothing is amiss after workmen leave for the day. The contractor will have fire insurance coverage, but that's small consolation after a serious fire.

**Deter vandalism**. A building is often less secure during construction. There may be an unguarded wall opening, a makeshift barrier, or an unlocked door somewhere. Collaborate with the contractor to minimize opportunities for entry into the school on nights and weekends. This is also a liability matter, one that should be taken seriously.

**Look for signs of water**. Rain water seeping into the building is a real possibility, particularly during roof repairs. But rain water can also enter through unfinished walls, windows, and joints. Unless openings are readily visible, there's not much you can do except be prepared to act when a leak is discovered. Instruct school staff to be alert for signs of wetness or water damage and to report these occurrences immediately. Water leaks can destroy equipment, short-circuit electrical wiring, cause structural deterioration, and promote mold and mildew.

**Minimize noise distractions**. It's hard to avoid construction noise. Confer with the contractor to determine when and where noisy operations are likely to occur. Perhaps classes close to the source of the noise can be temporarily moved elsewhere or the contractor can perform the work at a time of day when noise won't be as much of a problem. Be creative; a class field trip might be the solution to an upcoming noisy day.

**You may experience some discomfort**. Parts of the school's heating or cooling system may be inoperable at times during the construction process. Work closely with the contractor and custodial staff to anticipate such occurrences and help keep these incidents from becoming major events.

**Anticipate false alarms**. It is not unusual for fire alarms to be set off inadvertently during construction in an existing building. Be prepared for them and consult with the contractor to minimize their occurrence.

**Look out for bugs**. Construction disturbs animal habitats, and construction workers eat their lunches on the job site. This combination of disturbance and increased food supply can bring bugs out of the woodwork. Be on the lookout for ants, bees, roaches, mice, rats, squirrels, and other unwanted intruders. Quickly address any problems that arise with the contractor and custodial staff.

**Watch air quality!** Dust and dirt are annoying but usually harmless in small quantities. Large volumes of dust and other airborne contaminants released during construction work may pose a problem, however, not only with people but with computers and other sensitive equipment. Be proactive! Monitor air quality. Relocate susceptible persons. Clean floors, carpeting, desks, shelves, and other exposed surfaces daily. Cover equipment as needed.

When problems are found, take immediate action to determine their source and correct the conditions that caused them. Illness, computer malfunctions, construction delays, and lawsuits are the possible consequences of inaction. The Maryland State Department of Education has an excellent publication on this subject, *Maintaining Acceptable Indoor Air Quality during the Renovation of a School* (Jacobs 1995). For a concise guide to indoor air quality issues, see the NCEF publication, *Managing Indoor Air Quality in Schools* (Woolums 2000) and the NCEF Hot Topic, *Indoor Air Quality*; both are online on the clearinghouse's web site.

**Make a logistics plan**. During the construction process, you may have to shift students and programs around the building, sometimes creating makeshift classrooms from other spaces or moving some activities off site (Shafer 1999). This may require a significant amount of planning and scheduling. Coordinate with staff to minimize logistical problems. And don't forget about the library. Moving books and other library materials can be a major effort.

**Expect delays**. Construction delays are the rule, not the exception. Most construction work is performed out-of-doors and weather, alone, can play havoc with schedules. Then, there are labor disputes, shipping delays, supply backlogs, subcontractor problems, and accidents. Always have a contingency plan for delays. With luck, you won't need it.

**Use the process as a teaching device**. The construction process provides a unique opportunity for students to learn how buildings are designed and constructed. At Edison Elementary School in Grandview Heights, Ohio, teachers developed a "Build It Up" theme for sharing information on careers in design and construction and for developing projects and assignments about the renovation work being performed in the school. Construction photos and updates were posted on a special bulletin board and students were given periodic construction tours. "The kids loved the whole program," said the teacher in charge of the effort (Alberson and Kate 1999). Webcams and weather stations also can be used by students to document day-by-day onsite events.

## *After Construction*

**Train custodial and maintenance staff**. If the project involves the installation of new mechanical equipment and controls, be sure the contractor familiarizes your custodial and maintenance staff in their use and operation and turns over all necessary operating plans, manuals, and warranties. Most new mechanical systems are computer controlled and require skilled operators. Staff training probably will be required; see that it takes place promptly.

**The end is not the end**. Even after the construction equipment is gone and you've reclaimed your territory, the job isn't really over. The project architect or school district facilities staff will have prepared a "punch list" of items (such as touch-up painting, adjusting equipment, and making repairs) that still have to be completed by the contractor. Consider having your teachers make up punch lists, too, and pass them on to the district facilities staff. In the case of mechanical equipment, adjustments may have to be made over time to optimize its output. Expect minor construction activity for weeks, perhaps months, after the job is completed (Chan and Ledbetter 1999).

**Things will work out**. Even in the most successful project, not everyone is pleased. The building's traditional character might be changed. Teachers may be moved to new rooms they don't like. Promised equipment may have been deleted due to cost overruns or its installation may be delayed. Spaces may not turn out the way they were visualized by staff or they may not work as intended. But everyone will adjust to the new conditions and, if the project team has done a good job, everyone eventually will be pleased. (Dawson and Parker 1998).

**Post-occupancy evaluation**. If it hasn't done so, ask the school district to conduct a post-occupancy evaluation of your project, or conduct one yourself. This critique of the construction project after it has been completed helps determine what successes to copy and what failures to avoid on future jobs. It will also form the basis for future changes, since building requirements continually change and, in this sense, no building is ever complete.

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***Sponsor***

This publication was produced by the National Clearinghouse for Educational Facilities, an affiliate clearinghouse of the Educational Resources Information Center (ERIC) of the U.S. Department of Education.

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